



# United States Patent Office.

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## IMPROVEMENT IN TILE STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

I, EDWARD Y. ROBBINS, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Tile Stove, of which this is a specification.

### *Nature and Objects of the Invention.*

This invention relates to that class of stoves in which the various cooking-apartments or ovens are arranged one above another; and

The first part of my invention consists in a peculiar construction of a tile stove of two or more sections, each of said sections being detachable and complete in itself, and having its wall composed of a tile or tiles.

The second part of my invention relates to the manner of constructing the walls of said detachable sections, these walls being composed of one or more tiles whose upper and lower edges are confined within and protected by suitable angle-iron rings, which latter are united by rods or bolts that pass through them and through recesses or holes in said tiles.

The third part of my improvements consists in providing the tiles which compose the walls of the separable sections with a series of chambers, which not only lightens said tiles, but also increases their non-conducting qualities by vaporizing within them a body of confined air.

The fourth part of my improvements consists in arranging the tile wall around the flues in such a manner that an air-space will be formed between said tiles and flues which inclose the flues at every part and prevent the injurious heating of the said tiles and retain the heat within the oven.

### *General Description with Reference to the Drawing.*

Figure 1 is a perspective view of my improved tile stove with the doors of the fire-chamber and oven thrown open.

Figure 2 is a vertical section from front to rear of the same with all of the doors closed.

Figure 3 is a horizontal section through the baking-oven at the line *x-x*.

Figure 4 is a perspective view of the central section of my stove detached from the rest of the apparatus.

Figure 5 is an enlarged sectional view, showing the method of securing the tiles within their angle-iron rings.

Figure 6 is a plan, showing a portion of two contiguous tiles, and also a part of one of the angle-iron rings.

Figure 7 is a perspective view of a portion of a tile with its confining-ring removed.

The lowermost member of my range is the fire-chamber A, above which there are located successively the boiling or frying-compartment B and baking-oven C, these ovens being preferably of the segmental form shown in fig. 3, but may be square or of other shape.

Interposed between the fire-chamber A, ovens B C, and top plate D of the stove are three flues, E F G, whose shape corresponds with that of the ovens.

Communication between the lower flue E and intermediate flue F is effected by pipe H, which is situated in the rear part of oven B.

The intermediate flue F is connected with the upper one G by pipes N N', that are located at the sides of the baking-oven C.

The wall of the stove is composed of three distinct and separable tile sections, J K L, and three flat front plates, *j k l*, of the same height as said tiles.

These tiles are arranged concentrically around the flues of the stove, but not in actual contact therewith, a sufficient space, B' C', being left between said tiles and flues to prevent the tiles becoming injuriously heated.

In order to have the tiles as light as is consistent with strength, I provide them with a number of longitudinal and parallel chambers or cavities, I, which contain imprisoned air within them.

When all of the detachable sections are united so as to form a complete stove, they should be arranged in such a manner that there will be no escape of air from the chambers I, the open upper ends of said chambers in section L being covered by the top plate D, while the lower open ends of the chambers in section J are closed by the base-plate 1 of the stove.

If preferred, the angle-irons may project to the extreme inner face of the tiles, and thus close the open ends of the chambers at every joint of the section.

The top and bottom edges of the tile or tiles composing the walls of the detachable sections are confined within and protected by angle-iron rings O P, which embrace the upper and lower edges and a portion of the external face of the tiles, as clearly shown on an enlarged scale in fig. 5.

These angle-iron rings are united, so as to confine the tiles between them, in the following manner:

The vertical edges of the tiles are furnished with semicircular grooves *r*, so that when two of these tiles are placed edge to edge, as shown in fig. 6, a circular recess is formed between them. The angle-iron rings O and P are then applied to the top and bottom of the tiles, and a rod, R, is inserted in an aperture, *o*, of the upper ring O, and, after passing down the circular recess, between the edges of the tiles, is projected through an orifice, *p*, of the lower ring P, and secured by a nut, as represented in fig. 5; or this rod may pass down through holes in the body of the tiles.

This arrangement enables the ready detachment of a tile which has become cracked, and the easy substitution of a new one, and renders each section complete and portable in itself.

In order that each section may be complete in itself, so as to permit of the stove being handled and transported in pieces, it is necessary that the front plate of each of the sections should be securely united to the angle-iron rings so as to prevent it becoming detached therefrom, and I secure these members in the following manner:

Projecting from the angle-iron rings, and near the ends of the same, are lugs or flanges Z, which are firmly secured to the rear of the front plate by rivets or bolts z, as shown in fig. 3; but, if preferred, the ends of said rings may have hooked terminations Z', which can embrace the top and bottom edges of said plates j, k, or l, and be attached to the same by rivets Z'', as represented in fig. 4.

These angle-irons O and P are provided with perforated lugs or ears S, and the front plates j k l of the range are furnished with similar ones T, and when rods U are passed down through all of said lugs and engaged with nuts u the different sections composing the stove are immovably secured together.

Hinged to the lower front plate j of the stove is the door V of the fire-chamber A, and this door is made hollow so as to contain water, and is provided with a lid, v, and faucet v', which permits of its being used as a tea-kettle.

A skeleton door, W, is also hinged to the lower front plate, and when this one is closed up against the front part of the grate a, before the hollow door V is shut, it prevents the water in the latter boiling away too rapidly. The closing of the water-door prevents the radiation of heat into the room from the chamber A. The closed position of both doors V and W is shown in fig. 2.

The intermediate front plate k has hinged to it two bayed doors, X X', whose upper portions are provided with inwardly-projecting flanges x x' that partially close up a fume-passage, b', when said doors are shut, but entirely opens it when the doors are opened.

The fume-passage b' is formed in the top-plate b of the boiling and frying-chamber B, and this passage serves to conduct into the flue F any smoke, steam, or odor of any kind which may arise from the articles that are being cooked in said compartment; or these fumes may be conducted into a separate fume-flue.

The floor or bottom plate of the compartment B has an opening in it, which is closed by an ordinary stove-hole cover b''.

f and g are small doors or caps which, when removed, permit the inspection and cleaning of their respective flues F and G.

Y is the ash-pan and c the door of the baking-oven, which latter is hinged to the upper front plate l of the stove.

The fire-chamber A may be surrounded with fire-brick a', and a hot-water tank or circulating-boiler 2 may be located between these bricks and the outer tile-wall J, as represented in fig. 2.

Communication between this tank and air-space B' above it, is prevented by the plate b'', which extends over to the tile at the back of the stove.

The head and nut of the rod R may be countersunk so as to allow the angle-irons O P fitting snugly together when the detachable sections are united.

In the drawing my improvements are shown as applied to a cooking-stove, but it is evident that the feature of the detachable tile-sections can be embodied in a heating-stove or range.

#### Claims.

I claim as my invention—

1. A stove, consisting of two or more detachable sections, J K L, each of said sections including either the fire-chamber or the oven or some other part of the apparatus, and being surrounded by a wall of tile or tiles, which are retained in position by angle-iron rings O P, or their equivalents, said angle-irons being secured to the front plate of their detachable sections, for the purpose described.

2. Constructing the wall of the detachable sections of a stove of one or more tile or tiles L, whose upper and lower edges are confined within angle-iron rings O P, that are united by rods R, which pass through them, and also through recesses r or apertures in said tile or tiles, as herein explained.

3. Providing the tiles which compose the wall of the detachable sections with a series of air-chambers I, for the purpose herein explained.

4. Arranging the outer wall K or L around the flues or smoke-chambers E F G in such a manner that spaces B or C, that wholly inclose said flues or chambers, are formed between said wall and flues, for the purpose described.

5. The arrangement, substantially as herein described, of the fire-chamber A, lower oven B, upper oven C, flues E, F, and G, rear pipe H, and side pipes N N', for the purpose set forth.

6. Locating the pipes H N N' within the ovens B C of the stove, when said pipes and ovens are employed in connection with the flues E F G, arranged as herein stated.

7. Providing the oven of a stove with a fume-flue b', that is partially closed by shutting the door of said oven, and which flue is opened by the opening of said door, as herein shown and described.

8. The tea-kettle door V v v', as herein described and set forth.

9. In combination with the grate a and tea-kettle door V v v', the skeleton door W, for the object stated.

In testimony of which invention I hereunto set my hand.

EDWARD Y. ROBBINS.

Witnesses:

GEO. H. KNIGHT,  
JAMES H. LAYMAN.